



Senior Design Project in Electrical & Computer Engineering



Upgrade of Thermograph Data Recording Software

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Sponsor: International Ice Patrol

Project Background

The International Ice Patrol exists to monitor icebergs in the northern Atlantic, and issue warnings regarding iceberg formation, movement, and ice limits to the maritime community. The International Ice Patrol was founded following the sinking of the RMS *Titanic* in 1912. They have continued to upgrade their technology for detecting and tracking ice as they have grown. One method of collecting data used today is a bathy-thermograph buoy which measures water temperature at depths of up to 800 meters. These buoys are dropped from a C-130 airplane, and transmit temperature and depth information to a receiver onboard the plane. The receiver is controlled with a computer program called AXBT Receiver/Processor System (ARPS) on a laptop computer in the plane. This program is not very user friendly, and is in need of an upgrade. The program currently only supports either data recording or viewing the data on the screen, because once the screen used to view data is closed, the program stops receiving data from that buoy, making multiple buoy real-time monitoring impossible.



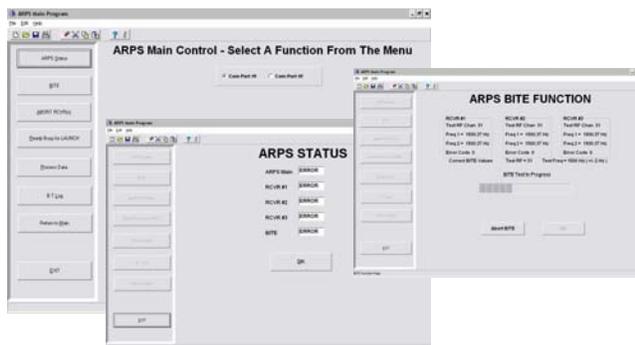
HC-130 on Ice Patrol Flight



Data Buoy and Recording Computer

Project Plan

The project has already been started, and last year a Graphical User Interface (GUI) was created as the user interface for the updated program. The overall appearance of the updated GUI is similar to the old program, with a more user friendly layout. Several modules, such as the status and BITE tests, have been completed. The work to be done this semester involves finishing the rest of the program modules to provide full functionality, including deciphering the communication protocol between the software and hardware. The updated software will then be subjected to testing, both in lab and operationally, to ensure that the new program performs properly. The end goal is a product which the International Ice Patrol can use as a replacement to their existing ARPS program on all future patrols.



Future IIP Software Windows

Project Deliverables

- Completed ARPS program update
- Documentation for work progress
- User's Manual for final ARPS program